ImproX EC^{II}

Product Specification Catalogue

The **ImproX (EC^{II}) Ethernet Controller** is a fully Ethernet compatible Controller for use in the IXP400i Access Control System.

The Controller boasts both an RS485 Controller Port (Port 1) and an Ethernet Port allowing use of either. When connected to the Ethernet Port the Controller offers communication speeds and capacity not yet seen in similar systems.

The Controller comes standard with an RS485 Terminal Port (Port 2) (able to support up to 32 full Anti-passback doors), on-board Diagnostic LEDs and a System Backup Battery. The Battery allows between 4 to 6 hours of uninterrupted power.

The ImproX (EC^{II}) Ethernet Advanced Controller is the next generation of Ethernet hardware promoting quick and easy installation across a LAN or WAN with bandwidth friendly communication protocol.

Key Features

General Hardware

- ARM920T Microprocessor Core operating at 200 mips (million instructions per second).
- Linux™ Operating System.
- 64 MB SDRAM Memory and 8 MB Flash Memory.
- LEDs indicate transmit and receive line activity for diagnostics.
- A Real Time Clock (RTC) with a 3 V Lithium Backup Battery (providing 5 years stand-by operation).
- Remote Firmware download capability.
- Supports a secure logon when changing Controller Configuration settings using the Ethernet Discovery Utility.
- An Ethernet Controller Port for connection to an Ethernet Switch or Hub (or other network device).
- An RS485 Controller Bus Port for connection to other ImproX (EC^{II}) Ethernet Controllers.
- An RS485 Terminal Bus Port for connection to up to 64 Terminal Fixed Addresses.
- Operation from power inputs in the range 10 V DC to 30 V DC.
- Configurable, dynamic memory providing 5 different configurations:
  - 300 000 Tags and 500 000 buffered transactions.
  - 250 000 Tags and 600 000 buffered transactions.
  - 200 000 Tags and 700 000 buffered transactions.
  - 150 000 Tags and 800 000 buffered transactions.
  - 100 000 Tags and 1 000 000 buffered transactions.
- Power Input Fail and Battery Low signal reporting.
- 48 Hour Hibernation Mode for extended battery backup of the ImproX (ECII) Ethernet Controllers database (including transactions).

ImproX (EC^{II})

Ethernet Controller

XEC900-0-0-GB-XX IPS970-0-0-GB-XX

Aluminium Extruded Cabinet (XEC900)

- Robust, Aluminium enclosure.
- Fully incorporated uninterrupted Power Supply with trickle charge and battery management.
- Incorporated 6 V 3 Ahr Sealed Lead Acid Battery providing 6 hours full operation.

Power Supply Combo (IPS970)

- A 3 Amp Switch Mode Power Supply providing 13.8 V DC.
- Integrated, automatic switch-over to Battery operation on Mains Failure.
- Compact, Mild Steel Cabinet, accommodating the Power Supply, Controller and a Sealed Lead Acid Battery.
- Five Quick Click Glands for easy wiring.
- An internal power supply provides the battery charging facility at 6.8 V and 350 mA.

When used with ImproNet Software V7.40 (and upwards)

- Tags per person: 8.
- Tagholder Access Groups per Tag: 10.
- Access Groups total: 10 000.
- Active System Events: 8 000.
- Actions: 50 000.

Physical Specifications

XEC900 Aluminium Extruded Cabinet

Length	:	168 mm (7 in).
Width	:	197 mm (8 in).
Height	:	89 mm (4 in).
Approximate Weight	:	2 kg (4 lb) Battery included.
Cabinet Material	:	Aluminium.
Colour	:	Black.

IPS970 Power Supply Combo

Length	:	305 mm (12 in).
Width	:	295 mm (11 in).
Height	:	77 mm (3 in).
Approximate Weight	:	3 kg (7 lb) excluding Controller and Battery.
Cabinet Material	:	Mild Steel.
Colour	:	Black

Environmental Specifications

XEC900 Aluminium Extruded Cabinet

Operating Temperature	:	-10°C to +50°C (+14°F to +122°F).
Storage Temperature	:	-15°C to +50°C (+5°F to +122°F).
Humidity Range	:	0 to 95% relative humidity at +40°C (+104°F) non-condensing.

impro technologies®
ACCESS CONTROL

Approvals

CE Approval	:	EN 301 489-3 and EN 304 489-1.
FCC Approval	:	Pending.
Dust & Splash Resistance	:	Designed to work in an indoor (dry) environment similar to IP30. The Controller is, therefore, not sealed against water.
Drop Endurance	:	2 m (7 ft) drop (in packaging).

IPS970 Power Supply Combo

Operating Temperature	:	-25°C to +60°C (-13°F to +140°F).
Storage Temperature	:	-40°C to +80°C (-40°F to +176°F).
Humidity Range	:	0 to 95% relative humidity at +40°C (+104°F) non-condensing.

Approvals

CE Approval	:	EN 301 489-1, EN 301 489-3 and EN 300 330-1.
FCC Approval	:	Pending.
Dust & Splash Resistance	:	Designed to work in an indoor (dry) environment similar to IP20. The Power Supply Combo is, therefore, not sealed against water.
Drop Endurance	:	1 m (3.28 ft) drop (in packaging).

Electrical Specifications

Power

XEC900 Aluminium Extruded Cabinet

Input Voltage	:	10 V DC to 30 V DC.	
Power Requirements		Current (mA)	Power (W)
Input Voltage 10 V DC (Maximum)	:	420	4.2
Input Voltage 30 V DC (Maximum)	:	140	4.2

Permissible Input Supply

Ripple Voltage (Max)	:	1 V_{PP} at 50 Hz.
Power Input Protection	:	Reverse polarity on DC power inputs, over-voltage and over-current protection are provided on the Controller.

Battery

Type	:	6 V 3 Ahr Sealed Lead Acid Battery.
Length	:	133 mm (5 in).
Width	:	34 mm (1 in).
Height	:	65 mm (3 in) including the terminals.
Battery Life	:	4-6 Hours uninterrupted operation. 48 Hours Power Shutdown (Hibernation Mode).

Real Time Clock Backup Battery (RTC)

Battery Type	:	1 x 3 V, CR2032, Lithium cell Battery.
Battery Life	:	5 Years (with power OFF).

IPS970 Power Supply Combo

Power Input

Input Voltage	:	85 V AC to 265 V AC at 50/60 Hz.

Power Output

Output Voltage (Mains Power On)	:	13.8 V DC ±0.3 V DC.
Output Current	:	2 A continuous (Power Output Terminals).

NOTE: The Power Supply Combo includes a 3 A Switch Mode Power Supply which provides two outputs, both with a voltage of 13.8 V DC. The combined current supply from both outputs may not exceed 2 A. The remaining 1 A is used for battery charging and system requirements.

Battery

Type	:	6 V 3 Ahr (Max) Sealed Lead Acid Battery.
Length	:	151 mm (6 in) (Max).
Width	:	65 mm (3 in) (Max).
Height	:	99 mm (4 in) including the terminals (Max).

Real Time Clock Backup Battery (RTC)

Battery Type	:	1 x 3 V, CR2032, Lithium cell Battery.
Battery Life	:	5 Years (with power OFF).

The following specifications are common to both the Aluminium Extruded Cabinet and the Power Supply Combo:

Controller Bus

Ethernet Port

Connection	:	Standard Ethernet RJ45 connector. 10/100 Mbps, half or full duplex.
Protocol	:	TCP/IP, UDP.

RS485 1 (Controller) Port

*NOTE: The **RS485 1 (Controller) Port** connection details only apply to ImproX EC[II] Controllers with Firmware V7.16 upwards.*

Configuration	:	38 400 Default.
Electrical Interface	:	RS485.
Baud Rates	:	9 600, 19 200, 28 800, 38 400 and 57 600 selectable via the Communications Protocol.
Data Format	:	8 data bits, no parity, 1 stop bit.
Communications Protocol	:	ImproX Secure Communications Protocol.
Line Termination (RS485)	:	Provision is made for line termination.
Default Mode	:	Receive Mode.

Terminal Bus

RS485 2 (Terminal) Port

Configuration	:	38 400 Default.
Electrical Interface	:	RS485.
Baud Rates	:	9 600, 19 200, 28 800, 38 400, 57 600 and 76 800 selectable via the Protocol.
Data Format	:	8 data bits, no parity, 1 stop bit.
Communications Protocol	:	ImproX Secure Communications Protocol.
Line Termination	:	Provision is made for line termination.
Default Mode	:	Receive Mode.

Memory

RAM (Non-volatile)	:	64 MBytes.
Flash ROM	:	8 MBytes.

Other

Anti-tamper Switch XEC900-0-0-GB-XX	:	2 Internal Switches.
Anti-tamper Switch IPS970-0-0-GB-XX	:	1 Internal Switch.

Factory Defaults

Test Modes

Power-on Self-test	:	RAM, Flash-ROM, RTC.

Baud Rate

RS485 1 (Controller) Port	:	38 400.
RS485 2 (Terminal) Port	:	38 400.

User Interfaces

Controller

Power Indicator

Power LED	:	Red LED (internally visible).

Diagnostic Indicators

Incoming RS485 1 (Controller)	:	Flashing Green LED (internally visible).
Outgoing RS485 1 (Controller)	:	Flashing Red LED (internally visible).
Incoming RS485 1 (Terminal)	:	Flashing Green LED (internally visible).
Outgoing RS485 1 (Terminal)	:	Flashing Red LED (internally visible).
Link Speed LED (Ethernet)	:	Flashing Red LED (internally visible).
Duplex Mode LED (Ethernet)	:	Flashing Red LED (internally visible).
Link Active LED (Ethernet)	:	Flashing Red LED (internally visible).
CPU Usage	:	Red LED (internally visible). On = Idle, Off = Busy.
CPU Running	:	Red LED (internally visible). On = Yes, Off = No.
CPU Fault	:	Red LED (internally visible). On = Fault Condition, Off = Okay.

Related Information

For extra information relating to this product refer to the:

- ImproX EC^{II} Hardware Installation Manual (XEC300-0-0-GB-XX).
- Ethernet Discovery Utility Software User Manual (XEC301-0-0-GB-XX).
- ImproNet Software Installers Guide (IXP362-0-0-GB-XX).
- ImproNet Webhelp (IXP393-0-0-GB-XX).

Ordering Information

Order the ImproX (EC^{II}) Ethernet Advanced Controller using the following Part Numbers:

- XEC900-0-0-GB-XX: ImproX (EC^{II}) Ethernet Advanced Controller housed in an Aluminium Cabinet.
- IPS970-0-0-GB-XX: ImproX IPS containing an ImproX (EC^{II}) Controller.

Warranty Details

This product conforms to our Warranty details on ***www.impro.net***.

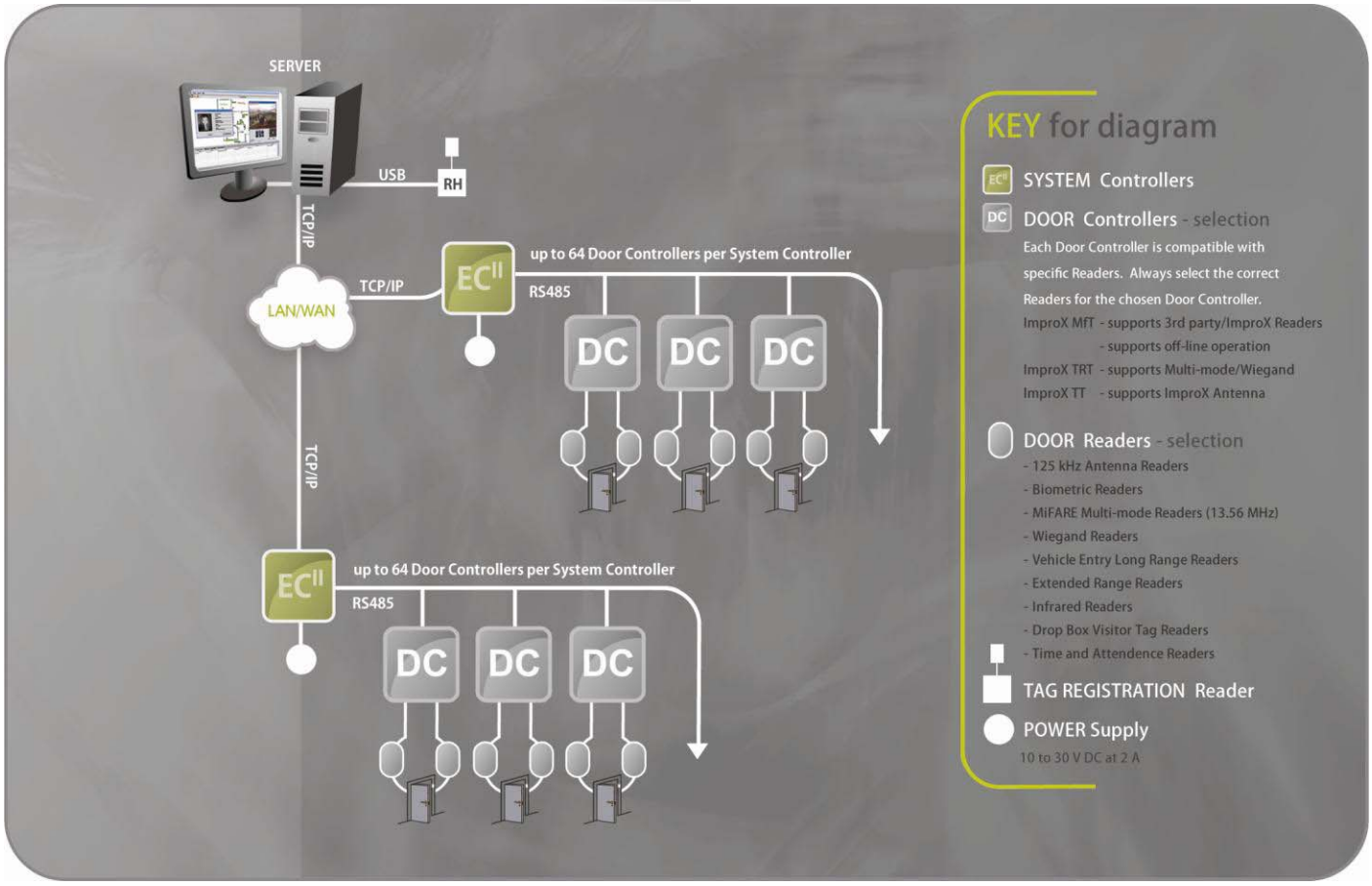

Figure 1: ImproX EC^{II} Ethernet Overview

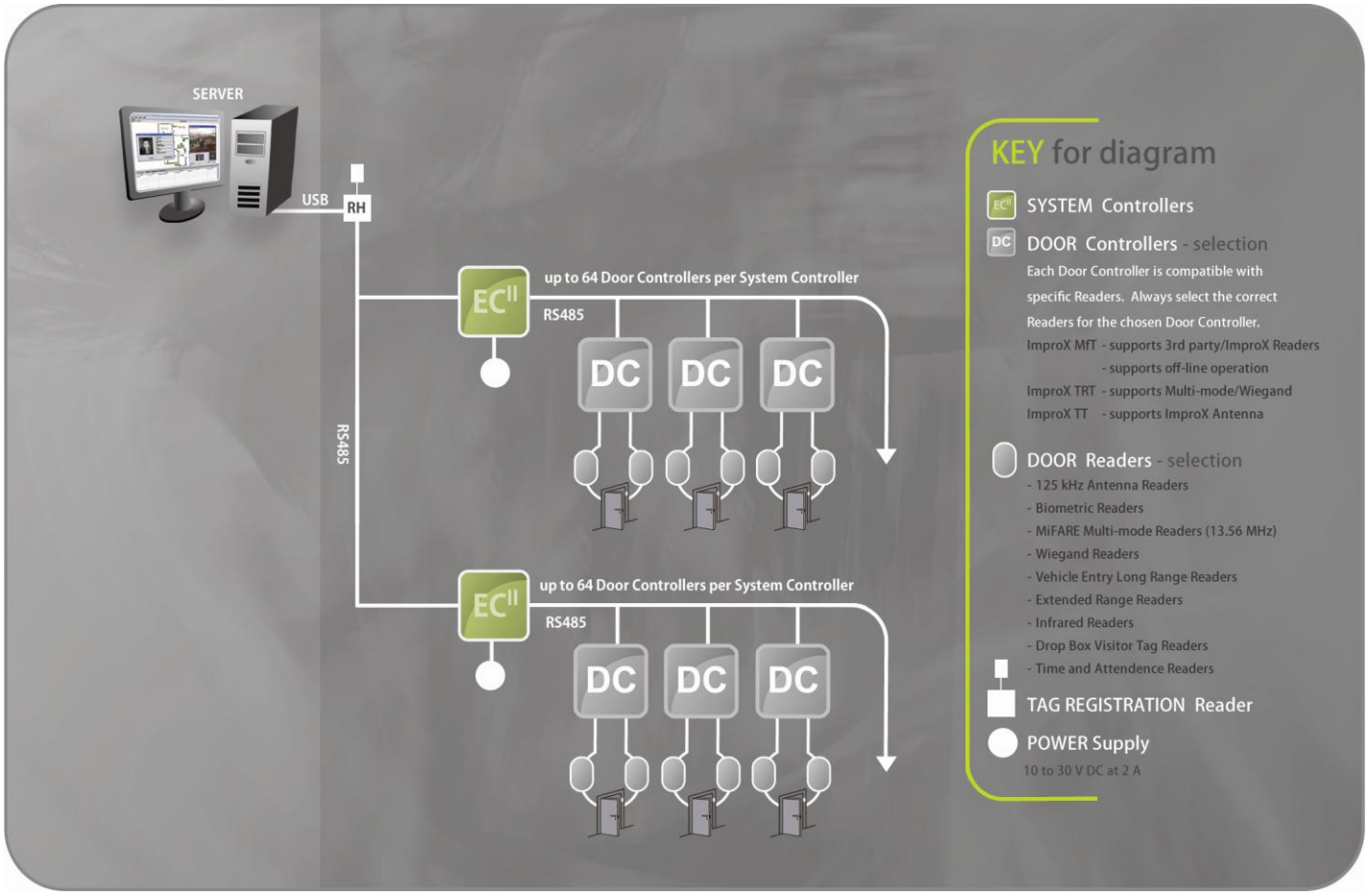

Figure 2: ImproX EC^{II} RS485 Overview